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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,797	09/12/2003	David D. Goodman	1796.1011	6152

21171 7590 10/31/2005

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EXAMINER
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BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/660,797

Applicant(s)

GOODMAN, DAVID D.

Examiner

Walter F. Briney III

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/5/05</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 2, 3, and 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Park et al. (US Patent Application Publication 2002/0188790).**

**Claim 2** is limited to a *method for communicating between a first device and a second device over a path*. In rejecting this claim it is noted that Park teaches an apparatus for converting 8-line/4-line Ethernet into 2-line Ethernet. See Abstract. As seen in figure 3 thereof, the Ethernet arrangement of Park includes two devices, namely a LAN card (210) and a switching hub (220), which respectively correspond to the first device and second device of the claim. The devices are in communication over a single twisted wire pair (270). While not explicitly shown, both the LAN card and switching hub include transmit and receive ports that are inherently necessary for bidirectional communication. As evidenced by the four wire connections of the LAN card and switching hub, the ports are 10BaseT ports.

In operation, the conversion controller (230) associated with the LAN card transmits signals over twisted pair (270); the conversion controller (800) associated with the switching hub receives the transmitted signals; the conversion controller associated

with the switching hub monitors for the signals presence using the receiving data detector (840); and if the signals are not present, the receiving data amplifier (830) is placed into a high-impedance state, disconnecting the receive port of the switching hub, while the transmission data amplifier (820) is activated for transmission, connecting the transmit port of the switching hub. It is submitted that the above procedures directly correspond to the steps of applying, receiving, monitoring and disconnecting as recited. Therefore, Park anticipates all limitations of the claim.

**Claim 3** is limited in part to *the method of claim 2*, as covered by Park.

Furthermore, this method comprises applying and receiving in an analogous manner as the method of claim 1, however, in the reverse direction (i.e. from the switching hub to the LAN card). These steps are supported by the Ethernet arrangement depicted in figure 3. In addition, Park discloses using a half-duplex transmission between the conversion controller (230) and the LAN card (210). See paragraphs 56 and 57. Half-duplex operation by definition means that only one channel of communication is broadcasting at a time. Thus, when the LAN card is transmitting in half-duplex mode no receive signals can be present, such that signals are prevented from reaching the receive port of the first device and signals flowing from the transmit port of the first device are amplified. Particulars of the way in which Park implements half-duplex operation are provided in paragraph 57 and figure 7C. Specifically, figure 7C includes a check for transmitting and received data. If no data is being transmitted or received, a loop back to the start follows. If transmission occurs after it has been determined that there is no receive data, no signals are allowed to be received in accordance with the

method described in paragraph 57. These steps correspond to the monitoring and preventing steps of the claim. Therefore, Park anticipates all limitations of the claim.

**Claim 10** is limited in part to *the method of claim 2*, as covered by Park.

Because the LAN card and switching hub operate in a half-duplex manner, it inherently follows that the first and second set of signals respectively transmitted by each device occur during first and second interval sets that are substantially non-overlapping. Therefore, Park anticipates all limitations of the claim.

**Claim 11** is limited in part to *the method of claim 2*, as covered by Park. Figure 3 of Park clearly illustrates that the first set of signals are amplified by the first PHY (310) after emerging from the LAN card and before the telephone loop (270). Therefore, Park anticipates all limitations of the claim.

**Claim 12** is limited in part to *the method of claim 2*, as covered by Park. Figure 3 of Park clearly illustrates that the second set of signals are amplified by the first PHY (310) after emerging from the telephone loop (270) and before reception by the LAN card (210). Therefore, Park anticipates all limitations of the claim.

**Claim 13** is limited in part to *the method of claim 2*, as covered by Park. As the title of Park suggests, the system depicted in figure 3 is directed toward Ethernet signals. Therefore, Park anticipates all limitations of the claim.

**Claim 14** is limited in part to *the method of claim 3*, as covered by Park. As the title of Park suggests, the system depicted in figure 3 is directed toward Ethernet signals. Therefore, Park anticipates all limitations of the claim.

**Claim 15** is limited in part to *the method of claim 13*, as covered by Park.

Because the signals are generated using four-wire connections, they are considered 10BaseT signals.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 4-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Goodman (US Patent 6,192,399).**

**Claim 4** is limited in part to *the method of claim 2*, as covered by Park. While the Park reference provides means to transmit Ethernet signals over a single two-wire twisted pair, the system of Park completely monopolizes the twisted pair for Ethernet transmission, not allowing other signals to be transmitted at the same time. Therefore, Park anticipates all limitations of the claim with the exception of providing a high impedance to signals above voiceband flowing from the path to a point removed from the path while allowing voiceband signals to pass and be converted to sound.

Goodman teaches a twisted pair communication system. See Abstract. Goodman identifies the above limitation of Park (see column 2, lines 24-33 and column 4, lines 8-9) and seeks to unify the transmission of a plurality of communication standards over a single twisted pair (see column 4, lines 10-15), clearly reducing the

cost overhead of laying diverse infrastructure for each transmission standard. Figures 9 and 10 of Goodman clearly depict the network structure. As can be seen from figure 10, Goodman takes advantage of frequency multiplexing in order to provide simultaneous transmission over a single twisted pair (810). It follows that the system disclosed by Park can be expanded to include transmission of several protocols over the single transmission channel (270) by providing a plurality of frequency selective filters within the front end of each converter, i.e. one filter for the digital converter (230) and another filter for the analog converter of figure 8. In addition, all ordinary telephone signals will be received and transmitted through a LPF (1020) as seen in figure 10 of Goodman.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate frequency selective filters as taught by Goodman within the transmission system of Park for the purpose of increasing the amount of communication protocols that can be simultaneously supported by a single unshielded twisted pair within a customer premises, which reduces cost of installation.

**Claim 5** is limited in part to *the method of claim 2*, as covered by Park. As noted in the rejection of claim 4, Goodman teaches frequency multiplexing over a telephone loop. In addition, Goodman teaches means for enabling Ethernet signals over a telephone loop—specifically, filter (1010). Therefore, Park in view of Goodman makes obvious all limitations of the claim.

**Claim 6** is limited in part to *the method of claim 3*, as covered by Park. As noted in the rejection of claim 4, Goodman teaches frequency multiplexing over a telephone

loop. In addition, Goodman teaches means for enabling Ethernet signals over a telephone loop—specifically, filter (1010). Therefore, Park in view of Goodman makes obvious all limitations of the claim.

**Claim 7** is limited in part to *the method of claim 2*, as covered by Park.

Goodman teaches in column 30, lines 19-24, that it would be advantageous to provide power to a hub over a single twisted pair. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide power to the switching hub (220) using a single twisted pair as taught by Goodman for the purpose of providing essential operating power to the hub without requiring connections to external power grids.

**Claim 9** is limited in part to *the method of claim 7*, as covered by Park in view of Goodman. Power applied to a two ended telephone loop is essentially connected to both ends. Therefore, Park in view of Goodman makes obvious all limitations of the claim.

3. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Goodman and further in view of Rabenko et al. (US Patent 6,862,353).

**Claim 8** is limited in part to *the method of claim 7*, as covered by Park in view of Goodman. Park in view of Goodman teaches, at most, providing DC power to the switching hub (220). Therefore, Park in view of Goodman makes obvious all limitations of the claim with the exception of expressing of substantially all of the power required by the second device at frequencies that are above the telephone voiceband and below the lowest frequency of the first set of signals.



Rabenko teaches that AC power should be provided to avoid problems with providing DC power over telephone lines that are connected to central offices, telephone gateways, etc... Specifically, Rabenko teaches providing power above a POTS band and below a data band (i.e. below the lowest frequency of the first set of signals). See column 7, line 54, through column 8, line 27.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide AC power within a range above the POTS band but below the first set of signals band to the switching hub (220) as taught by Rabenko for the purpose of avoiding the confusion of a POTS central office or gateway and for avoiding disturbing either the POTS or data transmissions present on the telephone line.

4. **Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Chen (US Patent 6,118,793).**

**Claim 16** is limited in part to *the method of claim 15*, as covered by Park. Park simply does not discuss the IFG values of the LAN card (210) and switching hub (220). Therefore, Park anticipates all limitations of the claim with the exception wherein the Ethernet IFG used by the first device is different than the Ethernet IFG used by the second device.

There is a plethora of IFG determining schemes known in the prior art, such as the taught by Chen, "method for adjusting inter-frame gap in ratio." See Abstract. When the IFG of the switching hub is adjusted away from the IFG of the LAN card because the switching hub must adjust to conditions of an external connection, it follows that the claim limitation is met.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide adjustable IFG for the LAN card (210) and switching hub (220) as taught by Chen for the purpose of providing the most efficient communication possible. See column 1, lines 55-62.

### ***Response to Arguments***

Applicant's arguments filed 05 July 2005 with respect to claims 2-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB  
10/25/05

  
**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**